1. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{3x-2} = \left(\frac{1}{25}\right)^{2x-5}$$

A. $x \in [14.48, 20.48]$

B. $x \in [-4, -2]$

C. $x \in [1.05, 3.05]$

D. $x \in [-1.35, 0.65]$

E. There is no Real solution to the equation.

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2. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(2x + 6) + 5 = 3$$

A. $x \in [27, 30]$

B. $x \in [5, 10]$

C. $x \in [10, 21]$

D. $x \in [-7.97, -0.97]$

E. There is no Real solution to the equation.

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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x + 2) + 5$$

A. $(a, \infty), a \in [-2.6, -1.5]$

B. $(-\infty, a), a \in [1, 4.8]$

C. $(-\infty, a], a \in [-5.2, -2.1]$

D. $[a, \infty), a \in [3.6, 6]$

E. $(-\infty, \infty)$

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4. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{-3x-5} = 9^{-5x+5}$$

A. $x \in [1.3, 2.9]$

B. $x \in [7.3, 9.7]$

C. $x \in [3.7, 5.7]$

D. $x \in [3, 4]$

E. There is no Real solution to the equation.

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5. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x+4) - 9$$

A. $[a, \infty), a \in [2, 5]$

B. $(-\infty, a), a \in [-14, -8]$

C. $[a, \infty), a \in [-6, 1]$

D. $(-\infty, a), a \in [8, 15]$

E. $(-\infty, \infty)$

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6. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+3} - 4$$

A. $(-\infty, a), a \in [-9, 2]$

B. $[a, \infty), a \in [1, 7]$

C. $(a, \infty), a \in [1, 7]$

D. $(-\infty, a], a \in [-9, 2]$

E. $(-\infty, \infty)$

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7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(-2x+6)+6=3$$

A. $x \in [0.99, 3.99]$

B. $x \in [-45.5, -38.5]$

C. $x \in [-29, -27]$

D. $x \in [-38.5, -33.5]$

E. There is no Real solution to the equation.

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8. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+2} + 9$$

A. $[a, \infty), a \in [-11, -6]$

B. $(-\infty, a), a \in [7, 14]$

C. $(a, \infty), a \in [-11, -6]$

D. $(-\infty, a], a \in [7, 14]$

E. $(-\infty, \infty)$

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9. Solve the equation for x and choose the interval that contains x (if it exists).

$$23 = \ln \sqrt[3]{\frac{28}{e^{8x}}}$$

A. $x \in [-2.59, -0.59]$

B. $x \in [-7.33, -4.33]$

C. $x \in [-8.21, -6.21]$

D. There is no Real solution to the equation.

E. None of the above.

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10. Solve the equation for x and choose the interval that contains x (if it exists).

$$5 = \sqrt[3]{\frac{24}{e^{7x}}}$$

A. $x \in [-2.71, -2.53]$

B. $x \in [-0.11, 0.1]$

C. $x \in [0.11, 0.24]$

D. There is no Real solution to the equation.

E. None of the above.